Azimuthally sensitive HBT interferometry and the tilt of the pion source at AGS energies

Ulrich Heinz [??] Mike A. Lisa [??] Urs A. Wiedemann [??]

[a] *The Ohio State University, Columbus, Ohio, USA*
[b] *CERN, Geneva, Switzerland*

Presented by: U. Heinz

Abstract

In noncentral heavy-ion collisions, HBT correlations can be measured as a function of the azimuthal angle Φ of the pair momentum relative to the reaction plane. This yields a snapshot of the spatial shape and orientation of the particle source at freeze-out which complements the information on its shape and orientation in momentum space as extracted from anisotropic flow measurements. At AGS energies the largest Φ-dependent HBT signal results from the tilt of the major axis of the emission ellipsoid away from the beam direction. For pions this *spatial* tilt turns out to be directed *opposite* to the tilt of the directed flow ellipsoid. This provides valuable insight into the physical origin of pion directed flow. Possible applications of the method for RHIC will also be discussed.

Preprint submitted to Elsevier Preprint *20 December 2000*